

**CITY OF AUSTIN
SCOPE OF WORK, SECTION 0500
FOR
EROSION CONTROL MATERIALS
INVITATION FOR BID (IFB) 6300-DCM1022**

1.0 Purpose

- 1.1 The City of Austin (City) seeks to establish a contract with a contractor(s) for the purchase of Geosynthetic and Natural Fiber Erosion Control Materials ("Materials") for use in engineered slope stabilization and stream restoration design for the Watershed Protection Department's Field Operations Division (City). Offerors are required to meet all specifications listed herein as minimum requirements and are required to submit firm fixed cost for all products under the terms of this solicitation.
- 1.2 The commodities requested include synthetic geogrids for mechanically stabilized earth systems, a range of rolled erosion control products for soil retention, fiber rolls, and anchoring systems to be used by City maintenance crews who maintain flood conveyance and repair erosion in storm water open channel systems.
- 1.3 It is the City's preference to award a single contract for these services however, the City reserves the right to reject all bids entirely or make multiple contract awards between the lowest and/or, most responsive and responsible bidders. This IFB will be awarded to the Contractor that submits the lowest responsive bid Award shall be based on individual or groups of specific line items, cost, or any criteria deemed by the City to be most advantageous. The City also reserves the right to refrain from awarding any lines or group of specific line items as-a-result of this solicitation and, instead, award the entire contract to a Contractor available through a cooperative purchasing agreement.

2.0 Contractor Qualifications

- 2.1 Contractor shall have continuously been in the business of providing the quantities of the commodities described herein for a minimum of three (3) years.

3.0 Contractor Requirements

The Contractor shall:

- 3.1 Furnish upon request the exact product stated on the Section 0600 Bid Sheet.
- 3.2 Shall immediately notify the Contract Manager or Department Designee to request approval of a substitute item, if a manufacturer discontinues an item. Contractor shall not substitute a product without written prior approval from the Contract Manager or Department Designee.

- 3.3 Shall have a local stocking location. Occasionally, the City may desire to pick up the Materials within ten (10) business days after notification by City.
- 3.4 Replace all non-conforming commodities within five (5) business days upon written notification by the Contract Manager or Department Designee, at no additional cost to the City.
- 3.5 Approved Equal Products
 - 3.5.1 Offeror may submit an offer on an approved equal product if the approved equal product meets or exceeds the City Approved Product specifications.
 - 3.5.2 Offeror shall state in Section 0600 Bid Sheet if they are bidding an approved equal product.
 - 3.5.3 Offeror shall include approved equal products specification sheets which includes manufacturer information, material weight, material composition, and accessory components with Offer Package.
- 3.6 Submit a sample presentation of the Composite Mat, within five (5) business days upon request of the Contract Manager or Department Designee, to ensure the mat meets the City's requirements. If requested, the sample presentation shall be provided within five (5) business days. **Do not send a sample with your bid.**
- 3.7 The City reserves the right to test the Contractor's product prior to executing the contract award to verify the items meet the requirements.

4.0 Contractor's Point of Contact:

The Contractor shall:

- 4.1 Provide a Single Point of Contact (SPOC) who is skilled, knowledgeable, and experienced in providing the types of services listed in this Scope of Work.
- 4.2 Provide SPOC's office number, email address, and cell phone number to the Contract Manager or Department Designee, within five (5) days after contract award.
- 4.3 The SPOC shall not be removed from the project without prior written consent by the Contract Manager or Department Designee. During times the SPOC is unavailable (due to vacation, travel, etc., for example), the Contractor shall provide a designee for the SPOC to the Contract Manager or Department Designee. The designee shall meet the same requirements as specified for the SPOC within this IFB and shall have the same authority as the SPOC.

5.0 **Material Requirements**

5.1 **Biaxial Geogrid, Tensar BX1200, or City approved equal.**

Geogrid shall be a regular grid structure formed by bi-axially drawing a continuous sheet of polypropylene. It shall have aperture, rib and junction cross-sections sufficient to permit significant mechanical interlock with the material being reinforced. Approximate Unit Size = 13.1 ' x 164' or 240 square yard. Minimum material requirements are listed below:

Index Properties	MD Values	
Aperture Dimensions (nominal)	1.0 in minimum	
Minimum Rib Thickness	0.05 in	
Tensile Strength @ 2% Strain	410 lb/ft MD Values	ASTM D6637
Tensile Strength @ 5% Strain	810 lb/ft MD Values	ASTM D6637
Ultimate Tensile Strength	1,310 lb/ft MD Values	ASTM D6637
Structural Integrity		
Junction Efficiency	93%	ASTM D7737-11
Flexural Stiffness	750,000 mg-cm	ASTM D5732-95
Aperture Stability	0.65 m-N/deg	GRI GG9
Durability Integrity		
Resistance to Installation Damage	95/93/90 %SC/SW/GP	ASTM D5818
Resistance to Long-Term Degradation	100%	ASTM EPA 9090
Resistance to UV Degradation	100%	ASTM D4355

5.2 **Uniaxial Geogrid, Tensar UX 1400 HS or City approved equal**

Geogrid shall be a regular grid structure formed by uniaxially drawing a continuous sheet of select high-density polyethylene material and shall have aperture geometry and rib and junction cross-sections sufficient to permit significant mechanical interlock with the material being reinforced. Approximate Unit Size = 4.3 ' x 250' or 120 square yard. Minimum material requirements are listed below:

Index Properties	MD Values	
Tensile Strength @ 5% Strain	2,130 lb/ft MD Values	
Ultimate Tensile Strength	4,800 lb/ft MD Values	ASTM D6637
Junction Strength	4,520 lb/ft	
Flexural Stiffness	730,000 mg-cm	ASTM D5732-95
Durability Integrity		
Resistance to Long-Term Degradation	100%	ASTM EPA 9090
Resistance to UV Degradation	95%	ASTM D4355
Recommended Allowable Strength Reduction Factors		
Reduction Factor for Installation Damage	1.05	
Reduction Factor for Creep	2.60	
Reduction Factor for Durability	1.00	

5.3 Wood Fiber Temporary Erosion Control Blanket with all Organic Materials, Western Excelsior Excel S-2 All Natural, or City approved equal.

The temporary erosion control blanket shall be constructed with a 100% aspen excelsior fiber matrix that has a design life of approximately 24 months. The excelsior shall be evenly distributed over the entire area of the mat. The blanket shall be covered on top and bottom with 100% biodegradable natural organic fiber netting woven in a 0.5 in by 1.0 in mesh. The blanket shall be sewn together on 2 inch centers with biodegradable thread. Approximate Unit Size = 4.3 ' x 250' or 120 square yard. Minimum material requirements are listed below:

Index Properties	MD Values	
Thickness	0.47 in	ASTM D6525
Mass per Unit Area	11.5 oz/yd ²	ASTM D6475
Water Absorption	275 %	ASTM D1117
Light Penetration	28 % open	ASTM D6567
MD Tensile Strength	16 lb/in	ASTM D6818
MD Elongation	20 %	ASTM D6818
TD Tensile Strength	11 lb/in	ASTM D6818
TD Elongation	20 %	ASTM D6818

5.4 Coconut Fiber Temporary Erosion Control Blanket with all Organic Materials, Western Excelsior CC-4 All Natural, or City approved equal.

The temporary erosion control blanket shall be constructed of 100% biodegradable materials containing 100% coconut fiber matrix and design longevity of approximately 36 months. The coconut fiber shall be evenly distributed over the entire area of the mat. The blanket shall be covered on top and bottom with 100% biodegradable natural organic fiber netting woven in a 0.7 in by 0.7 in mesh. The blanket shall be sewn together on 2 inch centers with biodegradable thread. Approximate Unit Size = 8' x 112.5' or 100 square yard. Minimum material requirements are listed below:

Index Properties	MD Values	
Thickness	0.26 in	ASTM D6525
Mass per Unit Area	9.5 oz/yd ²	ASTM D6475
Water Absorption	250 %	ASTM D1117
Light Penetration	15 % open	ASTM D6567
MD Tensile Strength	18.4 lb/in	ASTM D6818
MD Elongation	25 %	ASTM D6818
TD Tensile Strength	12.7 lb/in	ASTM D6818
TD Elongation	25 %	ASTM D6818

5.5 Synthetic Permanent Turf Reinforcement Mat, Propex Landlok 450, or City approved equal.

The permanent turf reinforcement mat shall be a dense web of crimped, interlocking, multi-lobed polypropylene fibers positioned between two biaxially oriented nets and mechanically bound together by parallel stitching with polypropylene thread.

Materials are stabilized against chemical and ultraviolet degradation and contain no biodegradable components. Approximate Unit Size = 6.5' x 138.5' or 100 square yard. Minimum material requirements are listed below:

Physical Properties	MD Values	
Mass/Unit Area	10.0 oz/yd ²	ASTM D6566
Thickness	0.40 in	ASTM D6525
Light Penetration	20 % (passing)	ASTM D6567
Mechanical Properties	MD Values	
Tensile Strength (Grab)	400 x 300 lb/ft	ASTM D6818
Elongation	50 % (max)	ASTM D6818
Resiliency	90 %	ASTM D6524
Flexibility	0.026 in-lb (avg)	ASTM D6575
Endurance Properties	MD Values	
UV Resistance @ 1000 hours	80 %	ASTM D4355
Performance Properties	MD Values	
Velocity (Vegetated)	18 ft/s	18 ft
Shear Stress (Vegetated)	10 lb/ft ²	
Manning's n (Un-vegetated)	0.025	

5.6 Temporary Erosion Control Blanket, Curlex Net Free, or City approved equal.

100% biodegradable, plastic-free temporary erosion control blanket consisting of seed-free, curled wood excelsior with 80% 6-inch fibers or greater length. Blanket will be a consistent thickness with fibers evenly distributed.

Index Properties	MD Values	
Thickness	≥ 0.4 in	ASTM D3525
Light Penetration	≥ 38 %	ASTM D6567
Resiliency	≥ 66 %	ASTM D6524
Mass per Unit Area	≥ 0.64 lb/sq. yd	ASTM 6475
Velocity (Vegetated)	≥ 3 ft/second	
Shear Stress (Vegetated)	≥ 1.0 lb/sq. ft	

5.7 Temporary Erosion Control Blanket, Curlex High Velocity, or City approved equal.

100% degradable erosion control blanket consisting of seed-free, curled wood excelsior with 80% 6-inch fibers or greater length. Blanket will be a consistent thickness with fibers evenly distributed. Top and bottom of each blanket will be covered with polypropylene and jute netting.

Index Properties	MD Values	
Thickness	≥ 0.4 in	ASTM D3525
Light Penetration	≥ 7 %	ASTM D6567

Resiliency	≥ 50 %	ASTM D6524
Mass per Unit Area	≥ 1.51 lb/sq. yd	ASTM 6475
Velocity (Vegetated)	≥ 11 ft/second	
Shear Stress (Vegetated)	≥ 3 lb/sq. ft.	

5.8 Hydraulically-Applied Erosion Control Flexible Growth, Biodegradable, High Performance Flexible Growth Medium, Profile Products Flexterra HP-FGM, or City approved equal.

Material shall be hydraulically-applied, 100% biodegradable, high performance, flexible growth medium (FGM) composed of thermally processed wood fibers, crimped interlocking man-made biodegradable fibers, mineral activators, naturally derived cross-linked biopolymers and water absorbents. The FGM is phytosanitized, free from plastic netting, requires no curing period and upon application forms and intimate bond with the soil surface to create a continuous, porous, absorbent, and flexible erosion resistant blanket that allows for rapid germination and accelerated plant growth. The material shall meet the following minimum performance specifications when applied at a rate of 3500 lbs. per acre:

Physical Properties	MD Values	
Mass per Unit Area	12 oz/ yd ²	ASTM D6566
Thickness	0.22 inches	ASTM D6525
Wet Bond Strength	9 lb/ft	ASTM D6818
Ground Cover	99%	ASTM D6567
Water Holding Capacity	1700%	ASTM D7367
Performance Properties	MD Values	
Vegetation Establishment	800%	ASTM D7322
Functional Longevity	Up to 18 months	ASTM D5338
Environmental Properties	MD Values	
Biodegradability	100%	ASTM D5338

5.9 High Flow Filer Fabric, woven, or City approved equal.

The fabric shall be woven mono-filament and meet the following requirements:

Index Properties	MD Values	
Fabric Weightass	≥ 3.0 oz/square yard	ASTM D3776
Ultraviolet (UV) Radiation Stability	≥ 70% strength retained after 500 hours in xenon arc device	ASTM D4355
Mullen Burst Strength	≥ 120lb/square inch	ASTM D3786
Water Flow Rate	≥ 275 gallons/min/sf A	STM D4491

5.10 Filter Fabric, 8 oz. Non-woven, TenCate Mirafi 180 N, or City approved equal.

The fabric shall conform to [City of Austin Specification 620S](#) except as otherwise noted herein. The fabric shall be constructed exclusively of synthetic thermoplastic non-woven fibers to form a mat of uniform quality. Fabric fibers shall be discontinuous and oriented in a random pattern throughout the fabric. The fabric shall be mildew resistant, rot proof and shall be satisfactory for use in a wet soil and aggregate environment. The fabric shall contain ultraviolet stabilizers and shall have non-raveling edges. The fabric weight (mass), on an ambient temperature air-dried tension free sample, shall be 8 oz/ square yard.

5.11 Coir Fiber Logs, 12" X 10', or City approved equal.

Coir Fiber Logs shall be machine fabricated cylinder manufactured from 100% mattress grade, non-sorted coconut fiber, encased in a 100% coconut (coir) fiber mesh netting. Mesh shall have approximately 2" rhombic mesh openings with mesh junctions tied. The average breaking strength of the coir twine or yarn shall be a minimum of 90 lbs. Minimum diameter of the coir twine or yarn shall be 3/8 inch. Approximate Unit Size = 12" x 10' Log. Other coir log properties are listed below:

Index Properties	MD Values
Diameter	12 in
Length	10 ft
Unit Weight	7.3 lbs/ft
Density	9.0 lbs/cu. Ft

5.12 Mulch Socks, 12" diameter per [City of Austin Standard Specification Item No. 648S](#).

Contractor shall provide a sample of the mulch socks, upon request of the Contract Manager or Department Designee, for approval.

A mulch sock consists of mulch material encased in a tube of mesh designed to intercept, settle, and filter runoff. The mulch material shall consist of shredded bark, stump grindings, or composted bark produced from a 3-inch minus screening process. The mulch material shall not contain large portions of silts, clays, or fine sands and shall be completely free of refuse, physical contaminants, biosolids, manure, recyclable material, and material toxic to plant growth. The pH of the mulch shall be between 5.5 and 8.5. The mesh sock shall be 100% biodegradable or photodegradable such as burlap, twine, or UV photodegradable plastic. The mesh opening shall be equal to or less than 3/8 inch and the material tensile strength shall be equal to or greater than 44 psi. Approximate Unit Size = 12" diameter x 10'.

5.13 Earth Anchors w/cable attachment, Duckbill Earth Anchor 68-DB1, or City approved equal.

Earth anchors made of high-impact and shock-resistant aluminum alloy shall weigh approximately 4.5 oz each with a holding power of 1100 lbs. Anchors shall include a minimum of 2.5 ft/ galvanized steel cable (1/8" X 7 X 7 GAC) with minimum strength 1700 lbs. for each earth anchor.

5.14 Bright Spike Nails

3/8" x 8" bright spike nails, medium to low carbon steel with a bending yield of 60,000 psi per [ASTM F1667-95 Standard](#). Approximately 182 nails per 50 pound box.

5.15 Fender Washers

Washers shall be made of steel with an inner diameter of 17/32" or 1/2" bolt size aperture, outer diameter 2", with a maximum gauge thickness of 0.080" and a minimum gauge thickness of 0.051", zinc blue plated to inhibit rust and corrosion. Approximately 950 washers per 50 pound box.

5.16 Wire Staples

Wire staples used for anchoring soil retention blankets, sod and turf shall have two legs of equal length that are driven into the ground. The wire shall 11 gauge (0.12 inch) diameter steel wire with a 1 inch or larger throat with at least 8 inch long legs. Approximately 1000 staples per 50 pound box.

5.17 Wooden Stakes

Wooden stakes constructed of pine with dimensions equal to 1" x 2" x 18".

5.18 Woven Wire

Woven wire sheathing in compliance with [City of Austin Standard 639S-1](#) for use in rock berm applications. Wire shall be a minimum of 20 gauge with maximum 1-inch openings

6.0 Warranty Requirements

6.1 Contractor shall warrant that the products provided are in accordance with the specification are new in appearance and function and never been used. Remanufactured or refurbished products are not acceptable.

6.2 Contractor shall replace all non-conforming commodities within five (5) business days of notification by the City, and at no additional cost to the City.

7.0 City Requirements

- 7.1 The City will designate an onsite contract for all deliveries upon the issuance of a Delivery Order.
- 7.2 The City will provide the Contractor with the names of personnel who will be authorized to order material upon Contract Award.
- 7.3 The City reserves the right to order other items of a similar nature to those specifically listed herein, based on the Contractor's discount from Non-Specified lines listed on the Bid Sheet and under the same terms and conditions of this Contract.
- 7.4 The City reserves the right to test the Contractor's product prior to executing the contract award to verify the items meet the requirements (Section 0400 Supplemental Purchase Provisions, Paragraph 9.E).